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# Chronic obstructive uropathy due to uretero-inguinal hernia: A case report

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ABSTRACT

*INTRODUCTION:* Inguinal hernia in men is common but uretero-inguinal hernia is very rare.
*PRESENTATION OF CASE:* A 85-year-old obese man presented with chronic obstructive uropathy with previous renal ultrasound showing bilateral enlarged kidneys and hydronephrosis. The medical history revealed a 3-year history of a noticeable bilateral partial reducible inguinoscrotal herniae associated with urinary symptoms. Progress CT scan showed very large inguinal herniae, which were predominantly fat-containing with the ureters herniated, and both kidneys were displaced inferiorly.
*DISCUSSION:* Uretero-inguinal hernia in patients with native kidneys is rare, but cases of renal failure secondary to uretero-inguinal hernia have also been reported previously in the literature with two anatomical variations have been reported – paraperitoneal and extraperitoneal types. Endourological and surgical procedures are rarely straight-forward because of tortuosity of the herniated ureter.
*CONCLUSION:* Although uretero-inguinal hernia is rare, it can be the cause of chronic renal impairment.


## 1. Introduction

Inguinal hernia in men is common and can happen at any age. With the exception of strangulated herniae, patients usually wait for months for an elective repair. Patients with inguinal hernia sometimes ignore it, unless the condition is symptomatic. Uretero-inguinal hernia is rare, especially in patients with native or non-transplant kidneys. In addition, it was usually an incidental finding during hernia repair with a high risk of damage to the ureter if unrecognised.[1] Although there are fewer than 10 case reports of uretero-inguinal hernia in adults with native kidneys in the literature, it was reported as early as the late 18th and early 19th century.[2,3]

## 2. Presentation of case

A 85-year-old obese man was referred by a nephrologist to a urologist with chronic obstructive uropathy. The patient was initially referred to the nephrologist in 2009 because of a creatinine level of greater than 175 μmol/L, as determined by a routine blood test. The patient had background history of diabetes mellitus, ischaemic heart disease, and atrial fibrillation on aspirin, Vitamin B deficiency, peripheral vascular disease, hypertension and osteoarthritis. Renal ultrasound in 2009 showed bilateral enlarged kidneys of 13 cm in length with bilateral hydronephrosis and prostate volume of 26 $cm^3$. Computed tomography (non-contrast) in the same period revealed bilateral dilated extra-renal pelvis with ureters of normal size, which was suggestive of pelvic–ureteric junction obstruction. Low-lying kidneys within the pelvis, as well as ureters containing small calculi running through the inguinal canals before attaching to the bladder were also revealed by the scan.

The medical history revealed a 3-year history of a scrotal mass associated with generalised dysuria, weak stream and urinary incontinence. On examination, the patient was obese with body mass index of 40 $kg/m^2$ with an irregular pulse rhythm and jugular venous pulse (JVP) 2 cm above the sternum. The respiratory examination was unremarkable. On abdominal examination, 30 cm × 20 cm × 20 cm bilateral partial reducible inguinoscrotal herniae were noticed. Other than a short section of foreskin, the penis was entirely embedded into the scrotum (Fig. 1). During admission, an indwelling catheter was inserted with no improvement in renal function. Progress CT scan showed very large inguinal herniae and both kidneys were displaced inferiorly (Fig. 2). An inpatient nuclear renal scan showed symmetrical renal function but failed response to frusemide with abnormal half-time clearance bilaterally. The half-time clearances of the left and right kidney were 55 and 40 min, respectively. The findings were in keeping with ureteric obstruction. Intra-operative retrograde pyelogram showed both kidneys were displaced inferiorly and the ureters were herniated in very large inguinal herniae (Fig. 3).

Having been reviewed by the medical consultants and anaesthetist, the patient and family understood the risks of proposed surgical intervention and preferred conservative management. The

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**Fig. 1.** Large bilateral partial reducible inguinoscrotal herniae were noticed on abdominal examination.

follow-up appointment with the nephrologist was arranged prior to discharge home.

## 3. Discussion

Uretero-inguinal hernia in patients with native kidneys is rare,[1–6] but cases of renal failure secondary to uretero-inguinal hernia have also been reported previously in the literature.[5] Two anatomical variations have been reported – paraperitoneal and extraperitoneal types. The majority of uretero-inguinal herniae reported are of the paraperitoneal type, with ureter sliding beside the peritoneal sac. This type of hernia is usually accompanied by the herniation of other organs, such as colon. There is a lack of peritoneal sac in the extraperitoneal type in which the ureter may be involved alone or in combination with retroperitoneal fat.[4] As in our case, ptosis of the kidney is commonly associated. However, pre-operative imaging for all herniae is not cost-effective. Therefore, imaging of the urinary tract pre-operatively is warranted for selected patients, especially those with renal impairment for which the cause is unknown. Owing to the length and tortuosity of the herniated ureter, it poses a technical difficulty for insertion of the ureteric stent during endourological procedures. If the patient is fit and has consented to surgical intervention, the ureter should be dissected free from the herniated contents.[1,4]

**Fig. 2.** CT scan showed very large inguinal herniae and both kidneys were displaced inferiorly.


**Fig. 3.** Intra-operative retrograde pyelogram showed that the right ureter was herniated in a very large inguinal hernia.

## 4. Conclusion

Although uretero-inguinal hernia is rare, it can be the cause of chronic renal impairment. Moreover, it poses a challenge to surgeons because of the high risk of being damaged during hernia repair.

### Conflict of interest statement

None.

### Funding

None.

### Ethical approval

Written informed consent was obtained from the patient's next-of-kin for publication of this case report and accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal on request.

### Contributions

Dr. Andy Chuk Moon Won contributed in medical record review, writing, imaging and review. Dr. Gerrard Testa contributed toward review.

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